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Deaths and death rates from cancer and other malignant tumors in the registration area (exclusive of Hawaii) and in the registration States: 1916-1920.

Area.	Number of deaths.			Ad-justed rate, 1920.	Rate per 100,000 population.				
	1920	1919	1918		1920	1919	1918	1917	1916
Registration area.....	72,931	68,551	65,340	(1)	83.4	80.5	80.3	82.0	82.1
Registration states ² (1916)...	60,656	57,775	56,081	(1)	86.3	83.4	82.1	82.7	81.8
California.....	3,800	3,553	3,308	87.4	109.2	105.3	101.3	100.8	95.9
Colorado.....	691	645	704	71.6	73.0	69.2	76.7	69.1	64.7
Connecticut.....	1,403	1,290	1,259	92.9	100.6	94.4	94.0	92.3	90.6
Delaware.....	198	191	(8)	75.3	88.4	86.1	(8)	(8)	(8)
Florida (total).....	510	464	(8)	57.0	52.1	48.5	(8)	(8)	(8)
White.....	384	371		58.3	59.2	59.1			
Colored.....	126	93		50.2	38.0	28.2			
Illinois.....	5,991	5,646	5,226	87.7	91.8	87.6	82.2	(8)	(8)
Indiana.....	2,645	2,551	2,568	72.9	89.9	87.4	88.7	88.7	84.3
Kansas.....	1,283	1,222	1,280	63.5	72.4	69.2	72.8	71.9	72.4
Kentucky (total).....	1,364	1,267	1,273	57.8	56.3	52.6	53.1	54.1	51.2
White.....	1,222	1,121	1,143	57.7	55.8	51.6	53.0	53.4	51.2
Colored.....	142	146	130	57.1	60.5	61.5	54.2	59.7	50.9
Louisiana (total).....	883	889	874	62.4	49.2	49.6	49.2	(8)	(8)
White.....	573	596	567	65.2	52.3	54.7	52.9		
Colored.....	310	293	307	68.0	44.2	41.7	43.6		
Maine.....	942	891	841	85.3	122.4	116.2	110.1	108.1	115.2
Maryland (total).....	1,372	1,263	1,199	86.8	94.1	87.6	84.1	87.7	85.7
White.....	1,200	1,107	1,063	88.3	99.0	92.4	89.9	92.8	91.8
Colored.....	172	156	136	76.7	70.0	63.9	56.0	62.9	56.5
Massachusetts.....	4,469	4,097	4,107	98.0	115.3	107.0	108.7	109.7	110.4
Michigan.....	3,099	2,970	2,896	78.1	83.5	81.9	81.9	79.9	80.4
Minnesota.....	2,293	2,113	1,947	92.2	95.4	89.1	83.2	83.9	86.3
Mississippi (total).....	686	673	(8)	48.0	38.3	37.6	(8)	(8)	(8)
White.....	348	365		47.6	40.6	42.9			
Colored.....	338	308		43.3	36.2	32.7			
Missouri.....	2,630	2,545	2,439	67.6	77.1	74.9	73.5	75.1	74.9
Montana.....	282	302	279	62.1	50.6	55.9	53.4	55.1	50.8
Nebraska.....	999	(8)	(8)	74.4	76.7	(8)	(8)	(8)	(8)
New Hampshire.....	521	480	479	79.5	117.4	108.5	108.6	106.4	112.4
New Jersey.....	2,760	2,725	2,485	87.0	86.6	87.2	81.2	84.4	82.7
New York (total).....	10,554	10,186	9,918	92.4	101.0	98.7	97.3	97.3	95.2
White.....	10,414	10,025	9,783	92.5	101.8	99.2	98.0	97.8	95.9
Colored.....	140	161	135	78.2	64.6	76.7	66.5	74.5	62.9
North Carolina (total).....	1,017	1,003	1,073	49.7	39.5	39.5	42.8	42.4	44.5
White.....	767	745	784	51.1	42.6	42.1	45.1	45.4	47.2
Colored.....	250	258	289	44.5	32.1	33.4	37.8	35.5	38.7
Ohio.....	5,171	4,892	4,800	77.8	89.0	85.7	85.6	87.0	86.9
Oregon.....	734	685	646	79.4	93.0	88.1	84.3	(8)	(8)
Pennsylvania (total).....	7,315	7,007	6,698	82.7	83.4	80.9	78.3	80.9	78.3
White.....	7,120	6,845	6,521	82.5	83.9	81.7	78.7	81.4	78.7
Colored.....	195	162	177	82.2	66.8	57.3	64.7	65.1	65.1
Rhode Island.....	606	580	570	88.6	99.7	96.5	95.8	101.4	97.7
South Carolina (total).....	557	563	571	45.9	32.9	33.6	34.4	36.9	34.6
White.....	333	324	330	51.9	40.9	39.9	41.4	45.4	40.9
Colored.....	219	239	241	38.5	25.3	27.7	28.0	29.1	29.0
Tennessee (total).....	1,094	1,006	1,021	51.7	46.6	43.2	44.1	46.8	(8)
White.....	905	813	822	53.2	47.8	43.3	44.2	47.1	
Colored.....	189	193	199	47.1	41.9	42.6	43.7	45.3	
Utah.....	250	265	229	67.8	55.1	59.5	52.3	55.1	58.3
Vermont.....	444	399	365	85.7	126.0	113.2	103.4	111.2	118.2
Virginia (total).....	1,299	1,202	1,224	61.9	55.9	52.3	53.9	52.6	56.3
White.....	948	899	904	61.6	58.2	56.0	57.1	54.6	62.2
Colored.....	351	303	320	61.1	50.7	43.9	46.5	47.9	43.0
Washington.....	1,123	1,045	996	77.0	82.1	77.7	75.3	71.9	74.4
Wisconsin.....	2,335	2,285	2,104	78.6	88.2	87.3	81.4	82.6	83.5

¹ Rate not calculated.

² Including the District of Columbia.

³ Not admitted to registration area until a later date.

SICKNESS FREQUENCY AMONG INDUSTRIAL EMPLOYEES.

MORBIDITY AMONG A GROUP OF WAGE EARNERS, JANUARY, 1920, TO JUNE, 1921.¹

Since January, 1920, the Public Health Service has been able to obtain, through the cooperation of a number of manufacturing companies and sick-benefit associations of employees, a considerable

¹ From the Statistical Office, United States Public Health Service. Data collected and tabulated under the supervision of Dean K. Brundage.

amount of sickness data classified by sickness causes. The data for disabilities lasting *one week or longer*, brought down to the end of June, 1921, are presented herewith.² As yet not enough morbidity material has been made available from benefit associations having waiting periods of two, three, or four days to permit the publication *currently* of cases of less than a week's duration. The present tabulation includes, therefore, only the more serious cases of sickness and nonindustrial accidents.

The restrictions of a large proportion of the reporting associations as to the age limits for eligibility to membership and the denial of sickness benefits for the venereal diseases and for certain other causes of disability prevent the statistics from being entirely comparable with those secured from other sources. On account of certain rules of a number of the reporting associations, especially the rule which refuses benefits for chronic diseases contracted prior to the date of joining the association, the rule forbidding payment for disabilities resulting from the violation of any civil law, or for the results of willful or gross negligence, it is believed that even for the illnesses lasting seven or eight days or longer the rates should be regarded as a *minimum* statement of the disabilities actually occurring.

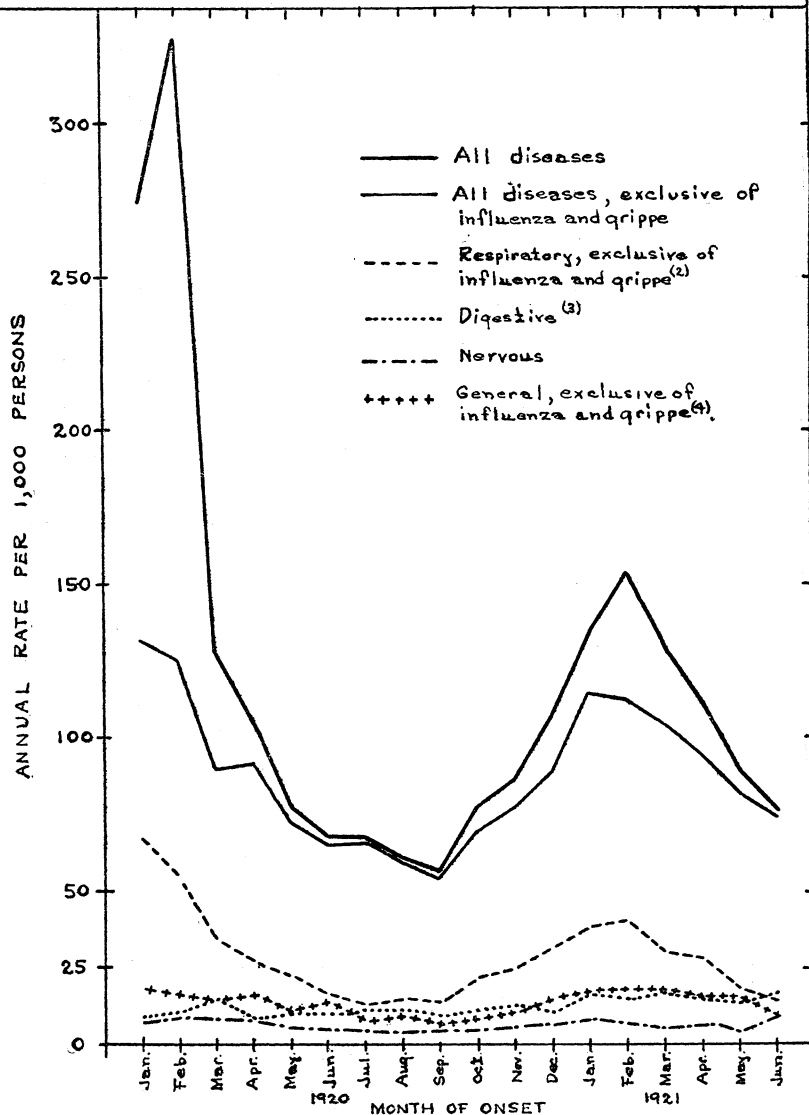
The number of persons used as the divisor in calculating the frequency rates is the number of employees reported as holding membership in the various associations during each month. Only a small proportion of the membership is composed of women. While practically all of the reporting associations require a physician's certificate stating the ailment causing disability, errors in diagnosis undoubtedly have occurred. It is believed, however, that the diagnoses are sufficiently correct to afford a fairly good picture of serious morbidity among a certain group of working people. The disease classification used is the same as that in the International List of the Causes of Death, in accordance with the recommendation of the committee on industrial morbidity statistics of the American Public Health Association. Wherever related diseases are grouped in the accompanying tables not strictly in accordance with the International classification, a statement of the diseases included or excluded appears in the footnotes.

The frequency rates of the more prevalent diseases and important disease groups are presented in the first two tables according to the month in which disability began. The rates are placed on an annual basis; i. e., the rate for any month represents what the total sickness from any specified cause would have been for the whole year had the rate for that month been maintained throughout the year.

² In previous issues the statistics for the first half of 1920, for the first nine months of 1920, and for the calendar year 1920 have been discussed. These articles, entitled "Sickness Frequency Among Industrial Employees," are as follows: (1) Reprint No. 624 from the Public Health Reports of Dec. 3, 1920, pp. 2897-2907; (2) Reprint No. 644 from the Public Health Reports of Mar. 4, 1921, pp. 429-434; (3) Reprint No. 671 from the Public Health Reports of July 1, 1921, pp. 1497-1502.

FREQUENCY OF THE PRINCIPAL DISEASE GROUPS BY MONTH OF ONSET FROM JANUARY 1920 TO JUNE 1921

ANNUAL NUMBER OF CASES PER 1,000 MEMBERS OF CERTAIN SICK-BENEFIT
ASSOCIATIONS REPORTING TO THE PUBLIC HEALTH SERVICE ⁽¹⁾



⁽¹⁾ Includes only those sickness and non-industrial accident cases which caused absence from work for one week or longer.

⁽²⁾ Including tuberculosis of the lung and diseases of the pharynx.

⁽³⁾ Excluding diseases of the pharynx.

⁽⁴⁾ Excluding influenza, grippe, and tuberculosis of the lungs.

Fig. 1.

TABLE I.—*Frequency of the principal disease groups by month of onset, January, 1920, to June, 1921, among a group of wage earners.*¹

Month of onset.	Number of associations reporting.	Member-ship.	Number of cases per 1,000 persons per year.					General diseases. ⁵
			All diseases and conditions. ²	All diseases except influenza and grippe.	All respiratory diseases except influenza and grippe. ³	Diseases of the digestive system. ⁴	Diseases of the nervous system.	
1920.								
January.....	8	14, 208	275. 0	132. 1	67. 4	9. 1	7. 5	18. 3
February.....	13	22, 249	320. 7	125. 3	54. 4	10. 2	8. 5	16. 4
March.....	15	23, 527	126. 0	88. 9	34. 1	14. 1	8. 0	14. 1
April.....	17	25, 832	103. 9	90. 7	27. 4	8. 6	8. 0	16. 0
May.....	22	54, 044	76. 7	72. 1	23. 2	9. 8	5. 9	11. 3
June.....	25	58, 035	67. 3	65. 0	15. 6	10. 1	5. 0	13. 4
July.....	26	58, 385	67. 1	66. 3	12. 9	11. 6	3. 8	7. 5
August.....	25	58, 969	60. 1	58. 9	15. 2	12. 2	4. 0	8. 8
September.....	23	60, 264	56. 2	54. 2	14. 0	9. 7	4. 3	6. 9
October.....	25	59, 211	76. 4	69. 0	21. 8	11. 7	4. 8	7. 9
November.....	27	75, 045	85. 7	76. 4	24. 9	12. 5	5. 5	10. 0
December.....	26	67, 197	106. 1	88. 0	31. 6	11. 5	6. 5	14. 6
1921.								
January.....	29	67, 028	134. 0	113. 3	37. 6	16. 7	8. 3	17. 6
February.....	30	68, 820	152. 5	111. 8	40. 5	14. 6	6. 8	18. 0
March.....	30	72, 755	128. 5	102. 9	30. 4	16. 6	5. 5	17. 7
April.....	31	71, 503	110. 6	93. 9	28. 3	14. 8	7. 2	14. 8
May.....	31	70, 555	88. 4	81. 7	18. 5	13. 4	4. 8	15. 0
June.....	31	69, 389	76. 6	73. 3	14. 6	16. 1	8. 6	9. 0

¹ Annual number of cases per 1,000 members of certain sick-benefit associations reporting to the Public Health Service. Only cases lasting a week or longer are included.

² Except the venereal diseases.

³ Including tuberculosis of the lungs and diseases of the pharynx.

⁴ Excluding diseases of the pharynx.

⁵ Excluding influenza, grippe, and tuberculosis of the lungs.

Seasonal Variation in Sickness Incidence.

From the health point of view, the year ending June 30, 1921, may be considered a normal year, since the period was relatively free from major epidemics. Normal seasonal variation in sickness incidence, therefore, may be studied. From Figure 1 it is apparent that serious illness occurred about twice as often in the winter of 1920-21 as in the summer of 1920. It will also be noticed that the sickness rate for each of the months given in 1921 was somewhat higher than the rate for the corresponding month in 1920, with the exception of January and February, which were influenza months in 1920. The prevalence of respiratory diseases (influenza and grippe excepted) was about three times as great in February, 1921, as in June, 1921. The digestive diseases exhibit no tendency to be more prevalent in the hot-weather months than at any other time of the year.

Diseases of the skin and cellular tissue (142-146).....	5.8	7.4	2.5	5.2	2.2	2.8	4.9	3.3	3.8	4.4	4.0	2.9	3.2	3.8	3.2
Furuncle (143).....	3.3	3.4	1.5	3.8	1.7	1.3	2.6	1.0	1.2	1.6	1.3	1.5	1.5	1.5	.9
Others (142, 144, 145).....	2.5	4.0	1.0	1.4	1.5	1.5	2.2	2.2	2.6	2.8	2.7	2.4	2.7	2.3	2.3
Diseases of the bones and of the organs of locomotion (146-149).....	4.1	1.7	3.0	2.4	3.8	1.7	2.4	2.4	1.8	3.4	4.2	7.1	4.6	4.8	5.4
Diseases of the bones and of the joints (146, 147).....															
Others, including lumbago (148, 149).....	.8	.6	1.5	1.0	1.8	.4	1.0	.6	.8	1.2	1.0	1.8	1.4	1.2	1.8
Scurvy (184).....	3.3	1.1	1.5	1.4	2.0	1.3	1.4	1.8	1.0	2.2	3.2	5.3	3.2	3.7	3.7
External causes (155-186).....	0	0	0	0	0	0	0	0	0	0	0	0	.5	0	0
Ill-defined diseases and conditions (187-189).....	3.3	10.8	2.5	13.2	6.1	7.6	12.1	6.2	7.9	6.8	8.1	10.0	8.7	9.5	8.4
	11.6	7.4	5.6	5.2	3.3	4.8	5.7	3.8	2.8	2.8	6.3	4.7	3.4	3.5	2.6

! Except the venereal diseases.

: Including organs of special sense (eyes, ears).

SEASONAL VARIATION IN THE INCIDENCE OF FOUR IMPORTANT CAUSES OF DISABILITY AMONG WAGE-EARNERS*

(LOGARITHMIC SCALE)

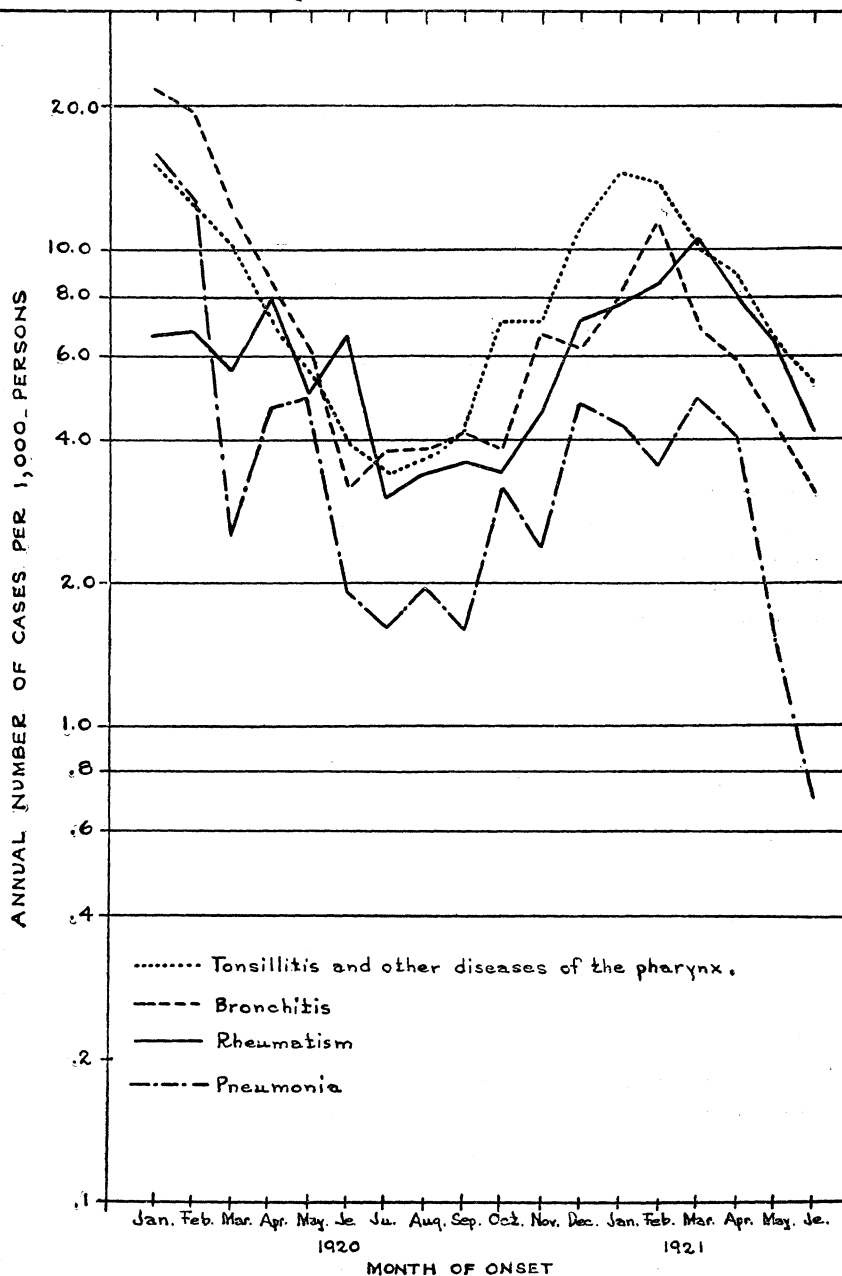


Fig. 2.

In Figure 2 the incidence of four important causes of disability is plotted on a logarithmic scale for the purpose of showing the relative changes from month to month rather than the actual variations. The seasonal fluctuation in the frequency of all four diseases appears to be fairly similar, though there is a tendency for the peak of the curve for rheumatism to be reached a month or two later than the time at which the other three diseases are most prevalent. Rheumatism is most frequent in the spring. In the group of persons under consideration the frequency of rheumatism was greater in 1921 than in 1920, though the reverse holds true for bronchitis and pneumonia.

Disability in Different Industrial Establishments.

In Table III, 12 industrial establishments are listed in order of the frequency of their cases of sickness which disabled for a week or longer in the year ending June 30, 1921. Associations B and H had more than four times as many cases per 1,000 members as association A. The dispersion in the number of days of disability per person was even greater, the severity rate for association H being 10.27 calendar days of disability per person in the organization, while association A experienced only 1.54 days of disability per person. These wide differences in the rates indicate a promising field for reducing the amount of sickness among different insured groups through study aided by statistics and through application of the principles of preventive medicine.

TABLE III.—*Sickness rates for the membership of certain sick-benefit associations of industrial employees during the year ending June 30, 1921.*¹

Rank according to frequency of disability.	Associations reporting during the entire year ending June 30, 1921.	Average membership.	Number of new cases during the year.	Number of new cases per 1,000 persons.	Calendar days of disability per person.
1.....	B.....	3,018	545	181	3.06
2.....	H.....	3,966	708	179	10.27
3.....	T.....	1,057	167	158	(²)
4.....	S.....	1,015	146	144	(²)
5.....	N.....	899	124	138	3.54
6.....	P.....	550	59	107	(²)
7.....	Q.....	657	70	107	(²)
8.....	O.....	518	43	83	2.27
9.....	D.....	3,797	291	77	(²)
10.....	E.....	15,195	1,071	71	4.02
11.....	R.....	1,390	93	67	(²)
12.....	A.....	8,266	343	42	1.54

¹ Includes only those cases of sickness and nonindustrial accidents which caused absence from work for one week or longer.

² The severity rate is not shown for associations having a benefit period of less than 52 weeks.